What Is Claimed Is:

1. A process for the recovery of ammonia from a reactor effluent stream comprising:

contacting a gaseous reactor effluent stream containing ammonia with a first aqueous ammonium phosphate solution, in a quench zone, to absorb substantially all of the ammonia present in the reactor effluent stream to form a second aqueous ammonium phosphate solution richer in ammonium ions than said first aqueous ammonium phosphate solution;

contacting said second aqueous ammonium phosphate solution with a stripping gas, substantially free of carbon dioxide, to remove volatile impurities contained in said second aqueous ammonium phosphate solution;

heating said stripped second ammonium phosphate solution to an elevated temperature sufficient to reduce the amount of ammonium ions in said second aqueous ammonium phosphate solution back to substantially the same level present in said first aqueous ammonium phosphate solution to thereby generate a vapor stream comprising ammonia and an aqueous stream.

2. The process of claim 1, wherein the heating of said stripped second ammonium phosphate solution to an elevated temperature takes place in a wet oxidation reactor at wet oxidation conditions to simultaneously remove unwanted impurities from said second aqueous ammonium phosphate solution and reduce the ammonium ion concentration to substantially the same level present in said first aqueous ammonium phosphate solution, a caustic material being added to said wet oxidation reactor to convert any ammonium carbamate formed to an insoluble carbonate.

3. The process of claim 1, wherein the heating of said stripped second ammonium phosphate solution to an elevated temperature takes place in a wet oxidation reactor at wet oxidation conditions to simultaneously remove unwanted impurities from said second aqueous ammonium phosphate solution and reduce the ammonium ion concentration to substantially the same level present in said first aqueous ammonium phosphate solution, and wherein said vapor stream comprising ammonia is recycled to the reactor through a line, the interior wall of which is maintained at temperature above the condensation temperature of the vapor stream.

4. The process of claim 1, wherein the heating of said stripped second ammonium phosphate solution to an elevated temperature takes place in a wet oxidation reactor at wet oxidation conditions to simultaneously remove unwanted impurities from said second aqueous ammonium phosphate solution and reduce the ammonium ion concentration to substantially the same level present in said first aqueous ammonium phosphate solution, and wherein said vapor stream comprising ammonia is recycled to the reactor through a line, said wet oxidation reactor and said line being constructed of a material that is not susceptible to corrosion by ammonium carbamate.

5. The process of claim 1, wherein the heating of said stripped second ammonium phosphate solution to an elevated temperature takes place in a wet oxidation reactor at wet oxidation conditions to simultaneously remove unwanted impurities from said second aqueous ammonium phosphate solution and reduce the ammonium ion concentration to substantially the same level present in said first aqueous ammonium phosphate solution, and wherein the so-generated vapor stream comprising ammonia is treated to reduce the concentration of any ammonium carbamate therein.

6. The process of claim 1, wherein said aqueous stream is recycled to said quench zone.

7. The process of claim 6, wherein at least a portion of said aqueous stream is subjected to a wet oxidation reaction at wet oxidation conditions to remove unwanted impurities from said aqueous stream prior to recycle to said quench zone.

8. The process of claim 1, wherein said vapor stream comprising ammonia is recycled to said reactor, said vapor stream having been contacted with caustic material to convert any ammonium carbamate to a carbonate.

9. The process of claim 1, wherein said vapor stream comprising ammonia is recycled to said reactor through ammonia purification equipment and wherein the temperature of the ammonia purification equipment is maintained at a temperature above the condensation temperature of the vapor stream.

10. The process of claim 1, wherein said vapor stream comprising ammonia is recycled to said reactor through ammonia purification equipment and wherein the ammonia purification equipment is constructed of a material that is not susceptible to corrosion by ammonium carbonate.

11. The process of claim 1, wherein said first aqueous ammonium phosphate solution has a pH of 3.5 or less.

12. A process for the recovery of ammonia from a reactor effluent stream comprising:

contacting a gaseous reactor effluent stream containing ammonia with a first aqueous ammonium phosphate solution, in a quench zone, to absorb substantially all of the ammonia present in the reactor effluent stream to form a second aqueous ammonium phosphate solution richer in ammonium ions than said first aqueous ammonium phosphate solution;

heating said second aqueous ammonium phosphate solution in a stripping zone to remove volatile impurities contained in said second aqueous ammonium phosphate solution and to form a stripped second ammonium phosphate solution;

heating said stripped second ammonium phosphate solution, in a decomposition zone, to an elevated temperature sufficient to reduce the amount of ammonium ions in said second aqueous ammonium phosphate solution back to substantially the same level present in said first aqueous ammonium phosphate solution to thereby generate a vapor stream comprising ammonia and an aqueous stream.

13. The process of claim 12, wherein the heating of said stripped second ammonium phosphate solution to an elevated temperature takes place in a wet oxidation reactor at wet oxidation conditions to simultaneously remove unwanted impurities from said second aqueous ammonium phosphate solution and reduce the ammonium ion concentration to substantially the same level present in said first aqueous ammonium phosphate solution, a caustic material being added to said wet oxidation reactor to convert any ammonium carbamate formed to an insoluble carbonate.

14. The process of claim 12, wherein the heating of said stripped second ammonium phosphate solution to an elevated temperature takes place in a wet oxidation reactor at wet oxidation conditions to simultaneously remove unwanted impurities from said second aqueous ammonium phosphate solution and reduce the ammonium ion concentration to substantially the same level present in said first aqueous ammonium phosphate solution, and wherein said vapor stream comprising ammonia is recycled to the reactor through a line, the interior wall of which is maintained at temperature above the condensation temperature of the vapor stream.

15. The process of claim 12, wherein the heating of said stripped second ammonium phosphate solution to an elevated temperature takes place in a wet oxidation reactor at wet oxidation conditions to simultaneously remove unwanted impurities from said second aqueous ammonium phosphate solution and reduce the ammonium ion concentration to

substantially the same level present in said first aqueous ammonium phosphate solution, and wherein said vapor stream comprising ammonia is recycled to the reactor through a line, said wet oxidation reactor and said line being constructed of a material that is not susceptible to corrosion by ammonium carbamate.

16. The process of claim 12, wherein the heating of said stripped second ammonium phosphate solution to an elevated temperature takes place in a wet oxidation reactor at wet oxidation conditions to simultaneously remove unwanted impurities from said second aqueous ammonium phosphate solution and reduce the ammonium ion concentration to substantially the same level present in said first aqueous ammonium phosphate solution, and wherein the so-generated vapor stream comprising ammonia is treated to reduce the concentration of any ammonium carbamate therein.

17. The process of claim 12, wherein said aqueous stream is recycled to said quench zone.

18. The process of claim 17, wherein at least a portion of said aqueous stream is subjected to a wet oxidation reaction at wet oxidation conditions to remove unwanted impurities from said aqueous stream prior to recycle to said quench zone.

19. The process of claim 12, wherein said vapor stream comprising ammonia is recycled to said reactor, said vapor stream having been contacted with caustic material to convert any ammonium carbamate to a carbonate.

20. The process of claim 12, wherein said vapor stream comprising ammonia is recycled to said reactor through ammonia purification equipment and wherein the temperature of the ammonia purification equipment is maintained at a temperature above the condensation temperature of the vapor stream.

21. The process of claim 12, wherein said vapor stream comprising ammonia is recycled to said reactor through ammonia purification equipment and wherein the ammonia purification equipment is constructed of a material that is not susceptible to corrosion by ammonium carbonate.

22. The process of claim 12, wherein said first aqueous ammonium phosphate solution has a pH of 3.5 or less.